

PATENT
671308-2001.1**AMENDMENTS TO THE CLAIMS**

Please amend the claims without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents, as follows.

Please cancel claims 1-3, 5, 8, 9, 15, 17, 18, 23, 26 and 27 without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents.

1-3. (Canceled)

4. (Currently Amended) ~~The method as claimed in any one of Claims 1 to 3, wherein the DNA is selected from the group consisting of:~~ A method for delivering a gene in a system for delivering DNA specifically to tumor tissues of an individual with cancer under anaerobic conditions, comprising the DNA, using a bacterium belonging to the genus *Bifidobacterium* transformed with an expressing vector with a terminator and a promoter functioning in the bacterium belonging to the genus *Bifidobacterium* as a gene delivery vector, wherein the DNA is selected from the group consisting of:
(a) DNA coding for a protein having an antitumor activity, and
(b) DNA coding for a protein having an activity of converting a precursor of an antitumor substance into the antitumor substance; with a further proviso that if the DNA codes for a protein having an activity of converting a precursor of an antitumor substance, the method further comprises contacting the tumor tissue with a precursor of an antitumor substance.

5. (Canceled)

6. (Original) The method as claimed in Claim 4, wherein the precursor of an antitumor substance is selected from the group consisting of 5-fluorocytosine, 5-aziridino-2,4-dinitrobenzamide, ganciclovir, a glucuronic acid-conjugated antitumor substance and a lysine-conjugated antitumor substance.

7. (Original) The method as claimed in Claim 4, wherein the protein having the activity of converting a precursor of an antitumor substance into the antitumor substance is a protein selected from the group consisting of cytosine deaminase, nitroreductase, herpes simplex virus type 1 thymidine kinase and β -glucuronidase.

8-9. (Canceled)

PATENT
671308-2001.1

10. (Currently Amended) The method as claimed in Claim 9 ~~4~~, wherein the promoter and terminator are those involved in expressing a gene coding for histone-like DNA-binding protein (HU protein) derived from *Bifidobacterium longum*.

11. (Currently Amended) The method as claimed in Claim 9 ~~4~~, wherein the promoter and terminator are DNAs located at the 1- to 192-positions and at the 472- to 600-positions respectively in the nucleotide sequence set forth in SEQ ID NO: 1.

12. (Currently Amended) The method as claimed in ~~any one of Claims 1 to 3~~ Claim 4, wherein the bacterium is *Bifidobacterium longum*.

13. (Currently Amended) The method as claimed in ~~any one of Claims 1 to 3~~ Claim 4, wherein the bacterium is *Bifidobacterium longum* 105-A/pBLES100-S-eCD (FERM BP-7274).

14. (Currently Amended) A method for expressing a ~~gene coding for a protein having an antitumor activity in tissue tumors specifically, which comprises use of the bacterium as claimed in any one of Claims 1 to 3~~ DNA delivered specifically to tumor tissues under anaerobic conditions in the tumor tissues of an individual with cancer, using a bacterium belonging to the genus *Bifidobacterium* transformed with an expressing vector with a terminator and a promoter functioning in the bacterium belonging to the genus *Bifidobacterium* as a gene delivery vector, comprising the DNA selected from the group consisting of:
(a) DNA coding for a protein having an antitumor activity, and
(b) DNA coding for a protein having an activity of converting a precursor of an antitumor substance into the antitumor substance; with a further proviso that if the DNA codes for a protein having an activity of converting a precursor of an antitumor substance, the method further comprises contacting the tumor tissue with a precursor of an antitumor substance.

15. (Canceled)

16. (Currently Amended) A pharmaceutical composition comprising ~~the a bacterium as claimed in any one of Claims 1 to 3~~ belonging to the genus *Bifidobacterium* transformed with an expressing vector with a terminator and a promoter functioning in the bacterium belonging to the genus *Bifidobacterium*, comprising a DNA selected from the group consisting of:
(a) DNA coding for a protein having an antitumor activity, and
(b) DNA coding for a protein having an activity of converting a precursor of an antitumor substance into the antitumor substance; with a further proviso that if the DNA codes for a protein

PATENT
671308-2001.1

having an activity of converting a precursor of an antitumor substance, the method further comprises contacting the tumor tissue with a precursor of an antitumor substance.

17-18. (Canceled)

19. (Previously Presented) The pharmaceutical composition as claimed in Claim 16, wherein the bacterium is *Bifidobacterium longum*.

20. (Previously Presented) The pharmaceutical composition as claimed in Claim 16, wherein bacterium is *Bifidobacterium longum* 105-A/pBLES100-S-eCD (FERM BP-7274).

21. (Currently Amended) A bacterium belonging to the genus *Bifidobacterium*; ~~which is used in the method as claimed in any one of Claims 1 to 3~~ transformed with an expressing vector with a terminator and a promoter functioning in the bacterium belonging to the genus *Bifidobacterium*, comprising a DNA selected from the group consisting of:

(a) DNA coding for a protein having an antitumor activity, and
(b) DNA coding for a protein having an activity of converting a precursor of an antitumor substance into the antitumor substance; with a further proviso that if the DNA codes for a protein having an activity of converting a precursor of an antitumor substance, the method further comprises contacting the tumor tissue with a precursor of an antitumor substance.

22. (Currently amended) A genetically modified bacterium, wherein the bacterium is a *Bifidobacterium longum* 105-A/pBLES100-S-eCD (having the deposit accession number FERM BP-7274.

23. (Canceled)

24. (Currently Amended) A The method of treating a solid tumor, which comprises use of the method as claimed in ~~any one of Claims 1 to 3~~ Claim 4 , wherein the tumor tissues are solid tumors.

25. (Currently Amended) A method of treating a solid tumor, which comprises administering ~~the a bacterium as claimed in any one of Claims 1 to 3 in combination with the~~ belonging to the genus *Bifidobacterium* transformed with an expressing vector with a terminator and a promoter functioning in the bacterium belonging to the genus *Bifidobacterium*, comprising a DNA selected from the group consisting of:

(a) DNA coding for a protein having an antitumor activity, and
(b) DNA coding for a protein having an activity of converting a precursor of an antitumor substance into the antitumor substance; with a further proviso that if the DNA codes for a protein

PATENT
671308-2001.1

having an activity of converting a precursor of an antitumor substance, the method further comprises contacting the tumor tissue with a precursor of an antitumor substance.

26-27. (Canceled)